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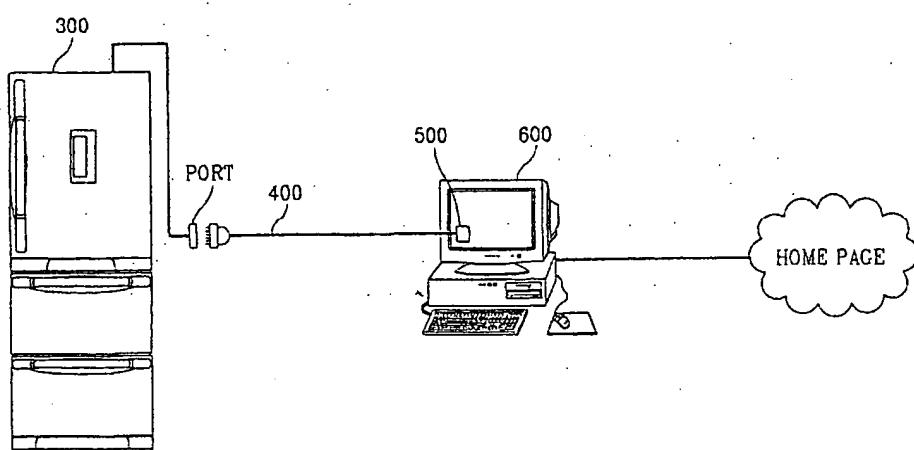
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: UPGRADE SYSTEM FOR SOFTWARE IN ELECTRIC HOME APPLIANCE



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(57) Abstract: A system for upgrading data of an electric home appliance, capable of analyzing and displaying data of a software on a display device by downloading the software of an updated electric home appliance using a computer system and upgrading the software of the electric home appliance by sensing the data displayed on the display device using a detector, thus to simplify the structure of the updating system and prevent generation of collision of hardware of the computer system as cables and communication ports for connecting respective electric home appliances and computer systems are not used.

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UPGRADE SYSTEM FOR SOFTWARE IN ELECTRIC HOME APPLIANCES

TECHNICAL FIELD

5 The present invention relates to a system for upgrading data of an electric home appliance and particularly, to a system for upgrading data of an electric home appliance, capable of transferring upgraded data to an electric home appliance without using a communication port of a computer system.

10 BACKGROUND ART

Recently, an electric home appliance such as a refrigerator includes a communication device to connect to the Internet or to construct a home network. That is, since the electric home appliance is connected with a communication port of a computer system and receives a necessary software, 15 upgrading of built-in softwares or internet searching can be performed.

A communication device of the electric home appliance in accordance with the conventional art will be described with reference to the accompanied drawings.

Figure 1 is a view showing a system for upgrading data of an electric 20 home appliance in accordance with the conventional art.

As shown in Figure 1, the upgrading system includes an electric home appliance 100 which includes a communication port PORT1, a computer system 200 which can connect to the internal, download an update file of the electric home appliance 100 by connecting to a homepage of the

manufacturing company of the electric home appliance 100 and includes a communication port PORT2, and a cable RS-232C which is connected with the communication ports PORT1 and PORT2, for functioning as a transmission path of data between the electric home appliance 100 and 5 computer system 200.

The upgrading system with the above structure will be described in more detail.

A user adjusts the computer system 200 to upgrade a software of the electric home appliance 100, and downloads an update file corresponding to 10 a model of the electric home appliance 100 by connecting to the homepage of the manufacturing company of the electric home appliance 100 or a mirror site.

The downloaded update file can be transmitted to the electric home appliance 100 through the cable RS-232C which connects the communication 15 port PORT2 positioned in the computer system 200 and the communication port PORT1 of the electric home appliance 100, and the electric home appliance 100 performs upgrading by using the upgrade file.

To connect the electric home appliance 100 and the computer system 200, communication ports must be included in the electric home appliance 20 100 and the computer system 200 respectively, and particularly, the computer system 200 must include cables which are connected a plurality of communication ports and respective electric home appliances to connect a plurality of electric home appliances.

However, in case of setting a plurality of communication ports in the

computer system 200, the devices can collide with another devices. Also, by using a plurality of cables, the structure becomes complicated and defiles the appearance.

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### DETAILED DESCRIPTION OF THE INVENTION

Therefore, an object of the present invention is to provide a system for upgrading data of an electric home appliance, capable of upgrading a software of an electric home appliance by detecting data of an update file displayed on a display device without installing an additional communication port for performing communication with respective electric home appliance in the computer system.

Also, the other object of the present invention is to provide a system for upgrading data of an electric home appliance, capable of improving appearance and simplifying the structure by excluding usage of RS 232C cable for connecting the respective electric home appliances and computer system.

To achieve these and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described herein, there is provided a system for upgrading data of an electric home appliance, including an electric home appliance having a microcomputer built-in, a computer system for displaying data for updating the microcomputer of the electric home appliance on a display device by connecting to the internet and a detector which is connected with the electric home appliance, for reading the data displayed on the display device and applying the data to the electric

home appliance.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is a view showing structure of a system for upgrading data of  
5 an electric home appliance in accordance with the conventional art; and

Figure 2 is a view showing structure of a system for upgrading data of  
an electric home appliance in accordance with the present invention.

**MODE FOR CARRYING OUT THE PREFERRED EMBODIMENTS**

10 The present invention will now be described with reference to  
accompanying drawings.

Figure 2 is a view showing structure of a system for upgrading data of  
an electric home appliance in accordance with the present invention.

As shown in Figure 2, the upgrade system includes an electric home  
15 appliance 300 having a communication port PORT, a computer system 600  
which can be connected to the internet, performs downloading of update data  
of the electric home appliance 300 by connecting to a homepage of a  
manufacturing company of the electric home appliance 300 and displays the  
data as two colors of black and white, a detector 500 for detecting the data  
20 of the update file which is displayed on the display device of the computer  
system and a cable 400 for applying the result detected by the detector 500 to  
the communication port PORT of the electric home appliance 300.

The present invention with the above structure will be described in  
more detail.

Firstly, the user connects to the homepage of the manufacturing company of the electric home appliance 300 by using the computer system 600 to upgrade a software of the electric home appliance 300, and then performs downloading of an update file corresponding to the electric home 5 appliance 300 from the homepage of the manufacturing company of the electric home appliance 300.

The downloaded file is analyzed in the computer system 600 and displayed as black and white by a data display device. That is, the binary data is displayed by analyzing the data a black and white colors. This can be done 10 by analyzing data of the update software of the electric home appliance downloaded to the computer system 600 and performing setup of the software which can display the result as black and white colors.

Then, the user attaches a detector 500 which is positioned at the other end of the cable having an end which is connected to the communication port 15 PORT of the electric home appliance 300 on a screen of the display device under the condition that the data of the update file is displayed on the display device of the computer system 600. When the detector 500 is attached on the display device, the detector 500 detects the data of the update file displayed 20 on the display device and generates an electric signal corresponding to the data.

Thereafter, when the data of the update file displayed as black and white on the display device of the computer system 600 is transmitted to the electric home appliance 300 by recognizing the data, the electric home appliance 300 which has the protocol capable of analyzing the signal built-in

performs upgrading of the software by analyzing the data of the update file applied through the detector 500.

The upgrading device in accordance with the present invention can upgrade a software of the electric home appliance 300 by detecting data of 5 an update file displayed on a display device without installing an additional communication port for performing communication with respective electric home appliance 300 in the computer system 600.

Also, the present invention can improve appearance and simplify the structure by excluding usage of RS-232C cable for connecting the respective 10 electric home appliance 300 and computer system 600.

#### INDUSTRIAL APPLICABILITY

The system for upgrading data of an electric home appliance in accordance with the present invention displays data of the software by 15 analyzing the data as black and white by downloading the software of the electric home appliance which is updated by using the computer system and upgrades the software of the electric home appliance by detecting the data displayed on the display device, thus to simplify structure of the update system and prevent generation of collision of hardware in the computer 20 system as cables and communication ports for connecting the respective electric home appliance and computer system are not used.

CLAIMS

1. A system for upgrading data of an electric home appliance, comprising:
  - an electric home appliance having a microcomputer built-in;
  - 5 a computer system for displaying data for updating the microcomputer of the electric home appliance on a display device by connecting to the internet; and a detector which is connected with the electric home appliance, for reading the data displayed on the display device and applying the data to the electric home appliance.
- 10 2. The system of claim 1, wherein the electric home appliance has a protocol for analyzing the data applied in the detector built-in.
- 15 3. The system of claim 1, wherein the computer system displays the data on the display device with colors.
4. The system of claim 3, wherein the colors are displayed on the display device as black and white.
- 20 5. The system of claim 1, wherein the detector reads the data displayed on the display device as colors.
6. The system of claim 5, wherein the colors are displayed on the display device as black and white.

7. A system for upgrading data of an electric home appliance, comprising:

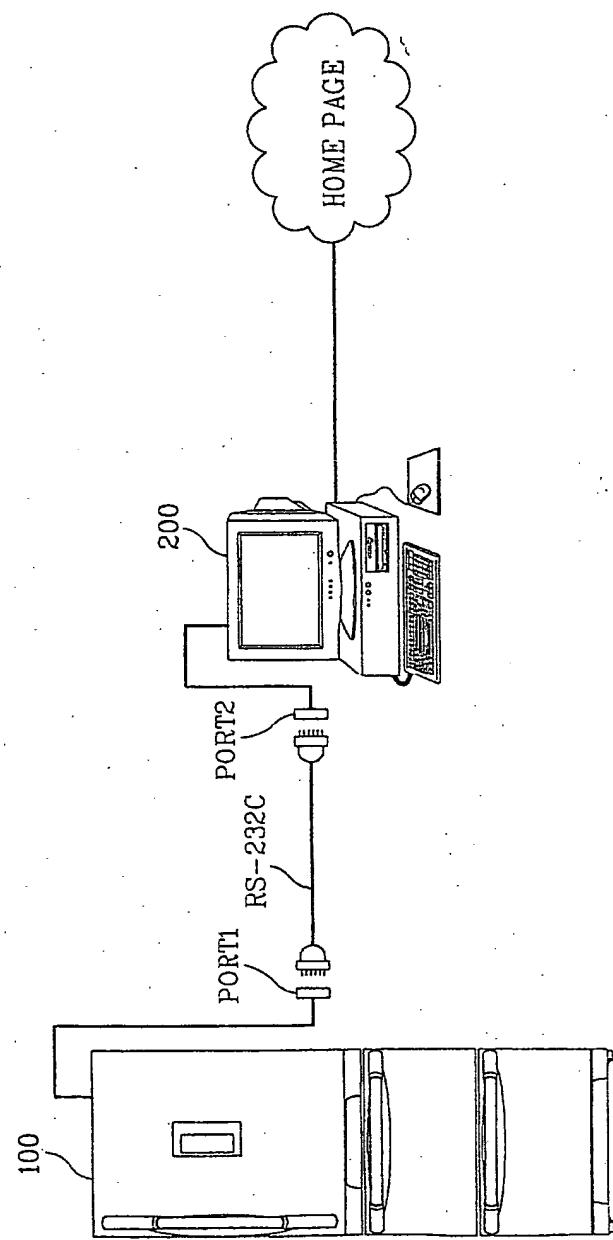
- an electric home appliance having a communication port, which can
- 5 upgrade functions of a built-in microcomputer;
- a computer system which performs downloading of update data of the electric home appliance by connecting to the internet and displays the data as two colors of black and white; and
- a detector which is connected with the communication port of the electric
- 10 home appliance with a cable, for applying the data to the electric home appliance by detecting the black and white data displayed on the display device of the computer system.

8. The system of claim 7, wherein the electric home appliance has a

15 protocol for analyzing the data applied in the detector built-in.

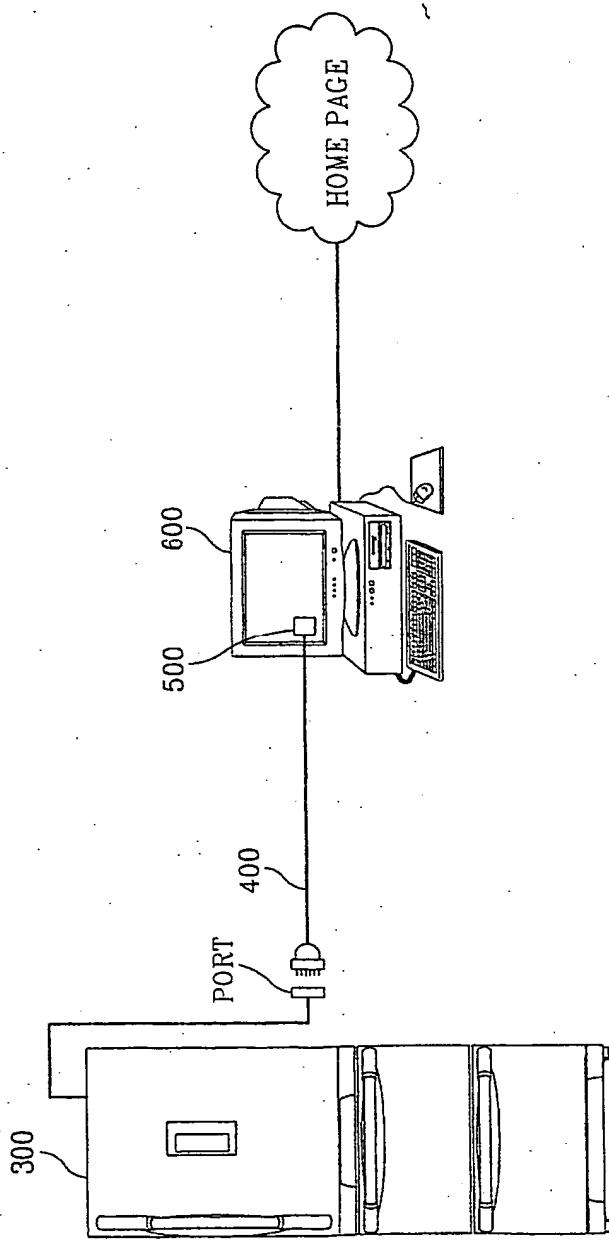
1/2

FIG. 1  
CONVENTIONAL ART



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FIG. 2



**PATENT COOPERATION TREATY**  
**PCT**

**INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference  PA/LGE/03249	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No.  PCT/KR03/00197	International filing date (day/month/year)  28 JANUARY 2003 (28.01.2003)	(Earliest) Priority Date (day/month/year)  28 JANUARY 2002 (28.01.2002)
Applicant  LG ELECTRONICS INC. et al		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item:

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2.  Certain claims were found unsearchable (See Box I).

3.  Unity of invention is lacking (See Box II).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawing to be published with the abstract is Figure No. 2

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

None of the figures.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR03/00197

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G06F 19/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G06F 19/00, G06F 15/00, H02J 13/00, G06K 5/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patent and applications for inventions since 1975

Korean Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
eKIPAS, 'home', 'appliance', 'internet', 'upgrade', 'update', 'computer'

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Patent Abstract of Japan, JP 10-304477 A (NORITZ CORP) 13 Nov. 1998	1-8
A	Patent Abstract of Japan, JP 11-102297 A (SANYO ELECTRIC CO LTD) 13 Apr. 1999	1-8
A	WO 99 43068 A1 (MERLONI ELECTRODOMESTICI S.P.A.) 26 Aug. 1999 See Abstract	1-8
A	US A 5,557,086 (SCHULZE ET AL) 17 Sep. 1996 See Abstract	1-8

 Further documents are listed in the continuation of Box C. See patent family annex.

Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

20 MAY 2003 (20.05.2003)

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Name and mailing address of the ISA/KR



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